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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/706,971	11/14/2003	Takaei Sasaki	101136-00102	7505

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EXAMINER

ROSASCO, STEPHEN D

ART UNIT	PAPER NUMBER
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1756

DATE MAILED: 08/02/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/706,971

Applicant(s)

SASAKI ET AL.

Examiner

Stephen Rosasco

Art Unit

1756

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 November 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 15-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 15-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04 November 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☒ Certified copies of the priority documents have been received in Application No. 09/361,158.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>11/04/03</u> | 6) <input type="checkbox"/> Other: _____ |

Detailed Action

The disclosure is objected to because of the following informalities: the specification should be amended to include the update of the stats of the parent application.

"This application is a divisional application which claims the benefit of pending application Serial No. 09/361,158, filed July 27, 1999, which is now U.S. Patent No. 6,685,848. The disclosure of the prior application is hereby incorporated herein by reference in its entirety. --

Appropriate correction is required.

Drawings

Figure 1 and 2 should be designated by a legend such as --prior Art- because only that which is old is illustrated. See MPEP j 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheets) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 15-18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 15-16 - The claims are directed to a method for manufacturing a semiconductor circuit, but the last lines of the claims recite that the patterns can be formed on a wafer or to manufacture a semiconductor circuit. The preamble does not include patterning a wafer as an end in itself. Therefore, these claims are unclear.

Claims 15-18 - The phrase "such as" in the claims "pattern-forming steps such as...", renders the claim indefinite because the limitations following this phrase are rendered optional and it is unclear whether these limitations are part of the claimed invention. See MPEP § 2173.05(d).

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 15-18 are rejected under 35 U.S.C. 102(b) as being anticipated by Isao et al. (5,629,114).

The claimed invention is directed to a method of manufacturing a semiconductor circuit and a semiconductor circuit product made by the process, and claimed as a product by process claim. The claimed methods include the use of a dry-etching method which comprises the step of dry-etching a metal thin film as a chromium-containing half-tone phase-shift film, wherein the method is characterized by using, as an etching gas, a mixed gas including (a) a reactive ion etching gas, which contains an oxygen-containing gas and a halogen-containing gas, and (b) a reducing gas added to the gas component (a), in the

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process for dry-etching the metal thin film. The dry-etching method permits the production of a half-tone phase-shift photomask by forming patterns to be transferred to a wafer on a photomask blank for a chromium-containing half-tone phase-shift mask. The photomask can in turn be used for manufacturing semiconductor circuits. The method is directed to the decrease of the dimensional difference due to the coexistence of coarse and dense patterns in a plane and the production of a high precision pattern-etched product.

Isao et al. teach a method of manufacturing a phase shift mask, which method comprises: sputtering a phase shifter film of a prescribed thickness on a substrate, said phase shifter film consisting of a single material having a phase of transmitted exposure light converted by 180 degree and having transmittance of 5% to 40%;

forming a resist film having a prescribed pattern on the phase shifter film; and
dry etching said phase shifter film using the resist film as a mask to form a first light transmit portion having said substrate exposed and a second light transmit portion made of said phase shifter film;

wherein said single material is selected from the group consisting of an oxide of a metal, a nitride oxide of a metal, an oxide of a metal silicide and a nitride oxide of a metal silicide.

And comprising sputtering a phase shifter film of an oxide of molybdenum silicide using a target of molybdenum silicide in a mixed gas atmosphere of argon and oxygen.

And comprising dry etching said phase shifter film with a mixed gas of carbon fluoride and oxygen.

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comprising sputtering a phase shifter film of a nitride oxide of molybdenum silicide using a target of molybdenum silicide in a mixed gas atmosphere of argon, oxygen and nitrogen.

The method can also comprise dry etching said phase shifter film with a gas selected from the group consisting of a mixed gas of methylene chloride and oxygen, a mixed gas of choline and oxygen, and a choline gas.

Conclusion

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Stephen Rosasco whose telephone number is (571) 272-1389. The Examiner can normally be reached Monday-Friday, from 8:00 AM to 4:30 PM. The Examiner's supervisor, Mark Huff, can be reached on (571) 272-1385. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read 'S. Rosasco', with a stylized initial 'S' and a checkmark-like flourish.

S. Rosasco
Primary Examiner
Art Unit 1756

S. Rosasco
07/26/05